

February 6, 1976

CONGRESSIONAL RECORD—SENATE

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tant to improved relations than general declaration or atmosphere.

These three specific areas—arms control, economic policy and political negotiations—will be the focus of East-West relations in the period ahead. Success in each of them is important.

We need a limitation on armaments. We need a system of international grain reserves.

We need progress toward peace in the Middle East.

It will be difficult enough to make progress in each of these areas individually. If we limit them and make progress in one dependent on progress on all, the task may be impossible. And if we make one-sided concessions in one of these areas in an effort to persuade the Soviets to change their stance in another, we will only expose our naivete.

We should signal clearly to the Soviet leaders that they can achieve solid benefits by cooperation in each of these areas. A strategic arms race, an unstable world food market, tension and conflict in the Middle East and elsewhere—none of these are in their interest.

They can work with us to avoid these dangers. But we must also make clear to them that progress can only be achieved if they, no less than we, are prepared to make concessions. Agreements must be based on a solid mutuality of interests.

In about a month the 25th Party Congress will occur. During this meeting important decisions will be made concerning the future direction of Soviet foreign policy. Looking further ahead, it is clear that the Soviets are on the threshold of a generational turnover among the Party leadership and hierarchy.

By actions and statements which make clear to the Soviets the principles that we believe should govern the East-West relationship, we may have a unique opportunity to influence the development of a Soviet foreign policy of restraint and responsibility, and the emergence of a less repressive domestic society. This can be achieved, not by being soft or compromising in any way, our national interests.

Firmness is in order. But we must couple this attitude with encouragement of the forces of moderation in Soviet society against the ideologues, nationalists and the military. To achieve this, American political leaders should focus on the three areas that I have described—seeking concrete progress, on the basis of the principles that I have outlined, that will serve the interests of both countries.

All this will be hard to do in an election year unless both political parties approach this issue in a realistic and responsible manner.

I want to see the Soviet-American relationship discussed and debated in the coming Presidential election.

But I want the candidates to use restraint. If they do not, and if demagoguery is substituted for sensible discussion, great harm could be done to the cause of influencing the evolution of a less aggressive Soviet foreign policy.

If inflammatory rhetoric or exaggerated promises become the coinage of a Presidential campaign in discussing Soviet-American relations, we only aid and abet those Soviets who want a return to the Cold War for their own purposes.

I urge candidates in both parties to take the high road of reasoned statesmanship, speaking honestly to the East-West issues that must now be tackled. In this way progress in our relations with the Soviet Union can continue even while we go about the process of choosing America's new leadership.

If we seek world peace, there are no alternatives to a constructive Soviet-American

relationship. If we wish to move its attention and energies to urgent domestic problems and pressing world responsibilities, the process of normalizing relations with the Soviet Union must continue.

ENVIRONMENTAL MODIFICATION

MR. PELL. Mr. President, I would like to draw the attention of my colleagues to a very timely and important article on environmental modification by Lowell Ponte, which appeared in the Los Angeles Times of January 29. Mr. Ponte is an editor of *Skeptic* magazine, and his new book, "The Cooling," which will be published in May, concerns the Earth's changing climate and those who would modify it. I had the honor of writing a foreword to that book.

In his Los Angeles Times article, Mr. Ponte discusses the outstanding issues which have yet to be resolved in the Geneva disarmament negotiations in order to develop a treaty prohibiting the military or any other hostile uses of environmental modification techniques. He also reviews the background leading up to those treaty negotiations including the Senate's passage in 1973 by an overwhelming 82 to 10 vote of a resolution which I introduced calling for such negotiations.

As Mr. Ponte correctly points out, many ambiguities and weaknesses exist in the current draft treaty. It was with a view toward clarifying and improving the treaty that the Foreign Relations Subcommittee on Oceans and International Environment, of which I am chairman, held hearings on January 21, 1976. During the course of those hearings, the subcommittee was particularly interested in knowing whether the draft treaty might be strengthened by deleting the language limiting the prohibition against environmental warfare to those instances in which the effects are "widespread, long-lasting, or severe."

As a result of the hearings, I have urged the administration to re-examine these criteria as well as other areas of ambiguity in the treaty with a view toward making the treaty a more effective means of arms control.

Mr. President, I ask unanimous consent that Mr. Ponte's article be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

WEATHER WARFARE FORECAST: PARTLY CLOUDY  
U.N. TREATY WOULD PERMIT "PEACEFUL" ENVIRONMENTAL RESEARCH BY MILITARY.

(By Lowell Ponte)

In 1967, then-Sen. Lyndon B. Johnson (D-Tex.) was enchanted—as were a number of lawmakers—by the fantasies of Department of Defense researchers who would use weather as a weapon of war. "From space," he said, "one could control the earth's weather, cause drought and floods, change the tides and raise levels of the sea, make temperate climates frigid."

A decade later, as President, he made some of those fantasies spring to life by authorizing massive rain making, defoliation and other kinds of environmental warfare in Southeast Asia.

As congressional inquirers have subsequently learned, the Pentagon secretly spent at least \$3.6 million a year between 1967 and

1972 seeding clouds over North and South Vietnam and Cambodia. The expressed purpose of such seedings, which in one instance increased rainfall by 30 percent, was to muddy vital supply trails, thereby hampering enemy troop and supply movements. Pentagon spokesmen called the seedings a failure, but defended the project as humane: "Raindrops don't kill people, bombs do."

The Department of Defense has denied that cloud seeding over North Vietnam in 1971 caused that country's heaviest rains and worst flooding since 1945, when more than a million Vietnamese had perished from flood and subsequent famine. But the Pentagon does make this admission: Just prior to the 1971 floods, it carried out a concerted policy of bombing flood-control dikes in North Vietnam.

Still, U.S. leaders have long professed that war aimed at civilian populations is wrong. With this in mind, as well as the unknown hazards of massive tampering with natural processes, Senator Claiborne Pell (D-R.I.) introduced a 1973 resolution calling for an international treaty to prohibit environmental warfare "or the carrying out of any research or experimentation." Directed thereto. On July 11, 1973, the Senate approved Pell's measure, 82 to 10.

Partially in response to the resolution, the United States joined Russia in proposing a treaty to ban "military or any other hostile use of environmental modification techniques." Submitted in August to the 31-nation U.N. Conference of the Committee on Disarmament in Geneva, the draft agreement is expected to win Senator ratification by this fall.

Pell's subcommittee on oceans and the international environment began hearings on the proposed treaty last week, though it is a far cry from what he originally wanted.

His chief objection is that the treaty would not ban military research or experimentation with environmental modification—"ENMOD," as it is called by a growing Pentagon bureaucracy dedicated to its study. Quite the contrary, the treaty clearly allows any "peaceful" research—even when conducted by a military organization.

The trouble comes when you try to define "peaceful."

The Pentagon, for example, contends that its Climate Dynamics program is essentially peaceful, because it is defensive in nature. Researchers in this program use elaborate computer models to study means of melting polar icecaps, generating hurricanes or otherwise utilizing "key environmental instabilities" to release vast amounts of potentially destructive energy. (These researchers have already discovered subtle ways that this country could, secretly from space, disrupt weather in the Soviet Union, thereby wrecking harvests and keeping that country dependent on U.S. grain imports.)

Pentagon officials say the program is necessary to detect any secret Soviet environmental tampering aimed at wrecking weather in North America. Indeed, because the proposed treaty makes no mention of forming an international agency to inspect or regulate climate modification programs, the Defense Department is likely to request even more money for the Climate Dynamics program—so the United States will be better able to detect treaty violations.

As the document now stands, enforcement provisions are in fact rather meager. Leaders of nations who believe their environment is under attack may present evidence to the U.N. Security Council. However, the council would be put in a severe bind should such a case come before it, because any evidence intended to show "weather warfare" would be highly debatable.

Climatology is an infant science, full of unknowns. Our planet's climate is already in a period of severe instability (whether from human or natural causes is uncertain). As a

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result, many countries will suffer terrible weather, drought and crop failures, and many will try weather and climate modification as remedies.

In 1975, the National Academy of Sciences even raised the possibility that a new Ice Age may be upon us within a century—a threat that certainly could prompt the United States and the Soviet Union to try global climate modification, not as an instrument of war but as a new form of "cold war." So what is clearly needed, in addition to this treaty, is some form of international agreement on inspection, assessment and reparation guarantees for countries injured by environmental modification. Another weakness of the proposed treaty is that it prohibits only those environmental modification techniques by the military that have "widespread, long-lasting or severe effects harmful to human welfare." Would this have kept the United States from modifying weather in Vietnam? Perhaps not, for as one Pentagon analyst said, "People in Southeast Asia are used to heavy rains." But how prolonged would rains have to be in a monsoon belt nation to be called "long-lasting and severe?"

Indeed, what is a "hostile" act, as banned by the treaty? The Russians are now busy reversing rivers that flow into the Arctic Ocean and creating inland seas. Experts say this action will alter world climate, but the treaty as written excludes "peaceful" environment modification from coverage.

Some lawmakers fear the treaty would even encourage potentially dangerous military research into environmental modification by helping it gain legitimacy and funds. Pell—along with Representatives Gilbert Gude (R-Md.) and Donald M. Fraser (D-Minn.)—would eliminate this risk by putting all U.S. government research into weather and climate modification, including that of the military and the Central Intelligence Agency, under control of a civilian authority answerable to Congress.

Next month, the Geneva disarmament conference will resume discussions on the treaty. It is expected to consider adding a prohibition on research into weather warfare—which would meet Pell's chief objection. Without such a restriction, the proposed treaty would have only limited value.

#### NATIONAL SCIENCE POLICY

Mr. JAVITS. Mr. President, S. 32, the National Policy, Organization, and Priorities for Science, Engineering, and Technology Act of 1976, approved by the Senate Wednesday was reported by the Labor and Public Welfare Committee, the Committee on Commerce, and the Committee on Aeronautical and Space Sciences. A committee of conference will soon be appointed to work out the differences between our measure and H.R. 10230, the House-passed measure. With this in mind, I think it would be most helpful to review the major differences between the Senate bill and H.R. 10230.

Both measures set forth a national science policy. Both measures establish in the Executive Office of the President an office of science policy. Both measures call for a full review of the overall Federal effort in science and technology.

The Senate measure establishes in its title IV a Federal coordinating group for science, engineering, and technology. This group is envisioned as quite similar to the Federal Council for Science and Technology presently established pursuant to Executive Order 10807. The House measure has no similar provision.

Title V of S. 32 establishes an Intergovernmental Science, Engineering, and Technology Advisory Panel charged with the responsibility of "identifying and defining civilian problems at the State, regional, and local levels to whose solution or amelioration the application of science, engineering, and technology may contribute." Title V further establishes a grant program to be administered by the Director of the National Science Foundation in consultation with the Intergovernmental Panel, to assist the States in establishing or strengthening State offices of science, engineering, and technology within the executive and legislative branches of their governments. The House measure has no comparable provision.

The committee on conference must examine title V in light of two factors which, in my view, are central to the appropriateness of the provision. First, is the issue whether the title V program duplicates or overlaps the intergovernmental science program presently administered by the National Science Foundation and funded for fiscal year 1976 at \$3,568,400. I note that the President has requested \$3,600,000 for this intergovernmental science program for fiscal year 1977. Second, the administration indicated its disapproval of the title V grant program because it places the Director of the National Science Foundation in the position of approving the organization of State science offices. I am not persuaded that these arguments are compelling as to either item but rather favor both.

Mr. President, the central purpose of this legislation is to provide the President with the best possible mechanism for receiving competent and appropriate advice on science and technology matters. It is my judgment that S. 32 will accomplish this purpose. As a result, for the first time in several years, the President of the United States will have available to him appropriate advice and expertise in the area of science and technology to assist him in making the often complex and far-reaching decisions demanded by that office.

One may legitimately ask how the status of science advice in the office of the President became so reduced as to require legislation such as this in the first place? In order to assist my colleagues and others interested in these issues, I refer at this point in the Record to a speech given by William T. Golden of New York City, in April 1975. This paper provides an excellent review of the rise and decline of science and technology advice for the President. It will also be of use in beginning the discourse on another important question for the near future—that of the nature and qualifications of the man to be chosen by the President as his Science Adviser.

Mr. Golden's views are, I feel, all the more noteworthy because his suggestions have come so close to the provisions embodied in H.R. 10230 and S. 32. His suggestions with respect to the qualifications necessary for the Science Adviser are thoughtful and constructive. The ultimate choice of the man to fill this position rests, of course, with the Presi-

dent. Mr. Golden's candidate is a man whose name will certainly come up in the future as the President reviews the position. It is my hope that Mr. Golden's speech, his suggestions, and his ideas, will assist others to continue a constructive and meaningful discourse over these issues.

I ask unanimous consent to include excerpts in the Record.

There being no objection, the excerpts were ordered to be printed in the Record, as follows:

WHAT CAN YOU SCIENTISTS AND ENGINEERS DO FOR ME: OR, WHY SHOULD THE PRESIDENT WANT A SCIENTIFIC ADVISER?

(Lecture by William T. Golden)

The subject of science advice for the President, long an interest of mine, is once again a timely one; and it is gratifying to see, by your presence, evidence of your concern.

Let me reveal at once, first, that I believe it to be virtually self-evident that the President needs science advice and, second, that it is not nearly as obvious that he needs a Science Adviser. This will be discussed.

#### PRESENT SITUATION

We have seen that the Presidential science advisory apparatus was created by President Truman early in 1951 under the strong stimulus of the Korean War; that it was reinvigorated by President Eisenhower in 1957 responsive to another stimulus, the launching of Sputnik by the Russians; and that it was dissolved by President Nixon in 1973, in some measure as a consequence of the divisiveness in American society produced by the Vietnam war.

Since 1973 the Director of the National Science Foundation, Guy Stever, has also had limited responsibility for providing non-military science advice to the President. Military science and technology are completely separated. Fragmentary fission products of the PSAC and Office of Science and Technology organizations have, fortunately, been attracted to other units of the Executive Office of the President, particularly the National Security Council, and the National Science Foundation. So all is not lost. However, the influence of scientific and technological counsel on policy formation in the upper levels of government has been downgraded, diminished, and dispersed.

Unlike the situation at the Korean War and Sputnik periods, there is no strong stimulus at this time to spur the President to create a new mechanism for providing science and technology information to him and to high levels of the government. However, the mounting domestic and international problems facing the nation have served to keep the issue very much alive.

There has been growing debate and pressure from the intellectual world generally, including the political and other social scientists as well as the physical and biological scientists, to re-establish a more effective and prominent focus for science and technology in the government structure, particularly in the Executive Branch. Congress has established its own Office of Technology Assessment under the directorship of the capable and experienced Emilio Q. Daddario, who was Mr. Science in Congress during his years as a Representative from Connecticut. But, this agency is not designed to and cannot fulfill the leadership function of the Executive Branch.

Congress is aware of this, as has been evidenced by the hearings of the Teague Committee on Science and Astronautics in the House of Representatives in 1973 and 1974 (in which many distinguished individuals testified at length) and by the activity of Senator Kennedy of Massachusetts. The latter, with associates, recently introduced a

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OFFICER'S  
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COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)

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